

## CLAIMS

1. A carbon nanotube dispersed composite material wherein long-chain carbon nanotubes are dispersed and integrated in the form of network into a discharge plasma sintered body composed of a ceramics (but excluding alumina) powder or a metal (but excluding aluminum or its alloy) powder.

2. A carbon nanotube dispersed composite material wherein long-chain carbon nanotubes are dispersed and integrated in the form of network into a discharge plasma sintered body composed of a mixed powder of ceramics and metal.

3. The carbon nanotube dispersed composite material according to Claim 1 or 2, wherein the ceramics powder has an average particle size of 10  $\mu\text{m}$  or less and the metal powder has an average particle size of 200  $\mu\text{m}$  or less.

4. The carbon nanotube dispersed composite material according to Claim 1 or 2, wherein the content of carbon nanotubes is 90 wt% or less by weight ratio.

5. The carbon nanotube dispersed composite material according to Claim 1 or 2, wherein the ceramics powder is composed of one or more of alumina, zirconia, aluminum nitride,

silicon carbide and silicon nitride.

6. The carbon nanotube dispersed composite material according to Claim 1 or 2, wherein the metal powder is composed of one or more of pure aluminum, aluminum alloy, titanium, copper, copper alloy and stainless steel.

7. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing a ceramics (but excluding alumina) powder or metal (but excluding aluminum and its alloy) powder and long-chain carbon nanotubes in an amount of 10 wt% or less by a ball mill, and a process of sintering the dispersed material by discharge plasma.

8. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing, by a ball mill, a ceramics (but excluding alumina) powder or metal (but excluding aluminum and its alloy) powder and long-chain carbon nanotubes in an amount of 10 wt% or less previously treated by discharge plasma, and a process of sintering the dispersed material by discharge plasma.

9. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and

dispersing a mixed powder of ceramics and metal and long-chain carbon nanotubes in an amount of 10 wt% or less by a ball mill, and a process of sintering the dispersed material by discharge plasma.

10. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing, by a ball mill, a mixed powder of ceramics and metal and long-chain carbon nanotubes in an amount of 10 wt% or less previously treated by discharge plasma, and a process of sintering the dispersed material by discharge plasma.

11. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing a ceramics (but excluding alumina) powder or metal (but excluding aluminum and its alloy) powder and long-chain carbon nanotubes by a ball mill, a process of wet-dispersing said powder and carbon nanotubes using a dispersing agent and a process of sintering the dried knead-dispersed material by discharge plasma.

12. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing, by a ball mill, a ceramics (but excluding alumina) powder or metal (but excluding aluminum and its alloy) powder

and long-chain carbon nanotubes previously treated by discharge plasma, a process of wet-dispersing said powder and carbon nanotubes using a dispersing agent and a process of sintering the dried knead-dispersed material by discharge plasma.

13. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing a mixed powder of ceramics and metal and long-chain carbon nanotubes by a ball mill, a process of wet-dispersing said powder and carbon nanotubes using a dispersing agent and a process of sintering the dried knead-dispersed material by discharge plasma.

14. A method of producing a carbon nanotube dispersed composite material comprising a process of kneading and dispersing, by a ball mill, a mixed powder of ceramics and metal and long-chain carbon nanotubes previously treated by discharge plasma, a process of wet-dispersing said powder and carbon nanotubes using a dispersing agent and a process of sintering the dried knead-dispersed material by discharge plasma.

15. The method of producing a carbon nanotube dispersed composite material according to any one of Claims 7 to 10, wherein the process of sintering the knead-dispersed material by discharge plasma includes two steps of carrying out plasma

discharge at low temperature under low pressure and then carrying out sintering by discharge plasma at low temperature under high pressure.

16. A heat exchanger formed of a carbon nanotube dispersed composite material having heat conductivity and high strength, wherein long-chain carbon nanotubes are dispersed and integrated in the form of network into a discharge plasma sintered body composed of a ceramics (but excluding alumina) powder or metal (but excluding aluminum and its alloy) powder.

17. A heat exchanger formed of a carbon nanotube dispersed composite material having heat conductivity and high strength, wherein long-chain carbon nanotubes are dispersed and integrated in the form of network into a discharge plasma sintered body composed of a mixed powder of ceramics and metal.